

AMENDMENTS TO THE CLAIMS

Amendments to the claims have been made in accordance with 37 C.F.R. 1.173 (b)(2) and appear as follows:

Claims 1-8 that appear in the issued patent remain pending.

9. A momentum control device for a spacecraft comprising:
a unitary structure;
a plurality of control moment gyros operatively connected to the unitary structure, each
of the plurality of control moment gyros adapted to rotate about an axis to thereby generate a
torque;
a series of mounting members disposed on the unitary structure and adapted to
operatively support the plurality of control moment gyros;
a control system adapted to control the operation of each of the plurality of control
moment gyros to thereby generate a desired resultant torque; and
an attachment device connected to the unitary structure and including a plurality of
struts, each of the plurality of struts having a predetermined static stiffness characteristic and a
predetermined passive damping characteristic, the plurality of struts adapted to transmit the
desired resultant torque generated by the plurality of control moment gyros and to attenuate a
transmission of vibration generated by the plurality of control moment gyros.

10. The device of claim 9, wherein the device includes between three and eight control
moment gyros.

11. The device of claim 9, further including a series of force sensors adapted to generate force information indicative of a force transmitted through each of the plurality of struts.
12. The device of claim 9, wherein the unitary structure forms a rigid arrangement that connects the series of mounting members and that has a stiffness characteristic that is greater than a stiffness characteristic of the attachment device.
13. The device of claim 12, wherein the unitary structure includes a plurality of terminal members and a plurality of elongated joining members.
14. The device of claim 9, wherein each of the plurality of struts includes a flex pivot.
15. A momentum control device for positioning a spacecraft comprising:
a plurality of bodies, each of the plurality of bodies adapted to rotate about an axis to thereby generate a torque;
a series of mounting members adapted to rotatably support the plurality of bodies;
a unitary structure adapted to form a rigid arrangement having a predetermined stiffness characteristic that connects the series of mounting members;
a control system adapted to control the operation of each of the plurality of bodies to thereby generate a desired resultant torque; and
an attachment device connected to the unitary structure and including a plurality of struts, each of the plurality of struts having a predetermined static stiffness characteristic and a predetermined passive damping characteristic, the plurality of struts adapted to transmit the

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desired resultant torque generated by the plurality of control moment gyros and to attenuate a transmission of vibration generated by the plurality of control moment gyros, wherein the stiffness characteristic of the unitary structure is greater than a stiffness characteristic of the attachment device.

16. The device of claim 15, wherein each of the plurality of bodies is a control moment gyro.

17. The device of claim 15, further including a series of force sensors adapted to generate force information indicative of a force transmitted through each of the plurality of struts.

18. The device of claim 15, wherein the unitary structure includes a plurality of terminal members and a plurality of elongated joining members.

19. The device of claim 15, wherein each of the plurality of struts includes a flex pivot.